

SKORNYAKOVA, N.S.

Bottom deposits in the northeastern part of the Pacific Ocean.

Trudy Inst.ocean. 45:22-64 '61. (MIRA 15:2)

(Pacific Ocean--Sedimentation and deposition)

ZENKEVICH, N.L.; SKORNYAKOVA, N.S.

Iron and manganese on the ocean floor. Priroda 50 no. 2:47-50
F '61. (MIRA 14:2)

1. Institut okeanologii AN SSSR, Moskva.
(Pacific Ocean--Iron) (Pacific Ocean--Manganese)

KLENOVA, Mariya Vasil'yevna; SOLOV'YEV, Vladimir Filippovich;
ALEKSINA, Iya Aleksandrovna; VIKHRENKO, Nina Makarovna;
KULAKOVA, Lidiya Sergeyevna; MAYEV, Yegor Georgiyevich;
RIKHTER, Vladislav Gavrilovich; SKORNYAKOVA, Nadezhda
Sergeyevna; ZENKOVICH, V.P., otv. red.; LEONT'YEV, O.K.,
red. izd-va; IADYCHUK, L.P., red. izd-va; GUS'KOVA, O.M.,
tekh. red.

[Geology of the subsurface slope of the Caspian Sea]Geolo-
gicheskoe stroenie podvodnogo sklona Kaspiiskogo moria.
[By] M.V.Klenova i dr. Moskva, Izd-vo Akad. nauk SSSR,
1962. 636 p. (MIRA 15:9)

(Caspian Sea--Geology)
(Caspian Depression--Geology)

SKORNYAKOVA, N. S.; ROMANKEVICH, E. A.; BEZRUKOV, P.L.; LISITSYN, A. P.; PETELIN, V.P.

Map of the Pacific Ocean Sediments

Report submitted for the 13th General Assembly, IUGG, (Oceanography), Berkeley,
California. 19-31 Aug 63

SKORNYAKOVA, N.S.

Disseminated iron and manganese in Pacific Ocean sediments. Lit. 1
pol. iskop. no.5:3-20 S-O '64. (MIRA 17:11)

1. Institut okeanologii, Moskva.

DUDKIN, M.S.; SHKANTOVA, N.G.; SKORNYAKOVA, N.S.; LEMLE, N.A.

Analysis of the chemical composition and the hydrolysis kinetics of polysaccharides from phyllophora and flowering plants of the Black Sea and its limans. Zhur. prikl. khim. 37 no.2:413-418 F '64. (MIRA 17:9)

1. Odesskiy tekhnologicheskii institut imeni Lomonosova.

SKORNYAKOVA, O. N.

U S S R .

/The Corrosion of Iron in Fused Salt Mixtures. V. P. Kocher-
gin, A. V. Kabirov, and O. N. Skornyakova. (*Zhur.
Priklad. Khim.*, 1954, 27 (9), 115-122, 1 fig. Russian).
The corrosion of iron in fused carnallite (hydrated chloride of
potassium and magnesium) at various temperatures was
investigated. The rate of corrosion in both aqueous carnallite
and in carnallite dehydrated with dry hydrogen chloride rises
with temperature, the opposite effect being found for the salt
dehydrated with ammonium chloride. The corrosion is
accompanied by hydrogen evolution, which can be used to
follow the reaction. The corrosion of iron in fused carnallite
stops if complex compounds containing hydrogen ions are
absent.—H. K.

SKORNYAKOVA O.N.

USSR/Thermodynamics - Thermochemistry. Equilibria.
Physical-Chemical Analysis. Phase Transitions.

B-8

Abs Jour : Referat Zhur - Khimiya, No 6, 1957, 18507

Author : V.P. Kochergin, M.S. Garpinenko, O.N. Skornyakova,
M.Sh. Minullina.

Title : Dissolution of Iron in Melted Chlorides of Alkali and
Alkali Earth Metals.

Orig Pub : Zh. prikl. khimii, 1956, 29, No 4, 566-569

Abstract : Experimental samples of Fe were immersed into melted
eutectic mixtures (BaCl_2 and KCl), (CaCl_2 and NaCl) and
(MgCl_2 and KCl) and the amount of Fe passed over into
the melts at 700° was found by the sample weight decrea-
se and by the analytical determination of Fe contents
in the mixed chlorides. The curves of the dissolution
speed show that this decrease diminishes at the transi-
tion from the autectic of MgCl_2 and KCl to the eutectic
of BaCl_2 and KCl . If the ions of H were eliminated

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SKORNYAKOVA, O. N.

~~Solubility of iron in fused chlorides of alkali and alkaline-
earth metals. V. P. Kochergin, M. S. Garpinenko, O. N.
Skorniyakova and M. Sh. Minullina. J. Appl. Chem.
U.S.S.R. 29, 621-5 (1956) (English translation).--See C.A.
50, 15194b. B. M. R.~~

PM

SKORNYAKOVA, S.I.

Treatment with Aralia mandschurica infusion of an asthenic state in cerebral vasopathy and initial atherosclerosis of the vessels of the brain. Trudy Gos.nauch-issl.inst.psikh. 25:335-341 '61. (MIRA 15:12)

1. Psikhonevrologicheskaya bol'nitsa No.4 imeni P.B.Gannushkina (glavnyy vrach V.N.Rybalka) i klinika sosudistyykh psikhozov (zav. - prof. V.M.Banshchikov) Gosudarstvennogo nauchno-issledovatel'skogo instituta psikiatrii Ministerstva zdravookhraneniya RSFSR. (ARALIA) (CEREBRAL ARTERIOSCLEROSIS) (ASTHENIA)

KAS'YANOVA, A.A., assistant; POL'GEYM, L.V., inzh.; SKORNYAKOVA, T.A.,
inzh.; PAVLOV, S.A., prof., doktor tekhn.nauk

Effect of the molecular weight of polyamide resins on the
properties of their solutions and films. Izv.vys.ucheb.zav.;
tekhn.prom. no.6:28-33 '59. (MIRA 13:5)

1. Moskovskiy tekhnologicheskiy institut legkoy promyshlennosti.
Rekomendovana kafedroy tekhnologii iskusstvennoy kozhi.
(Polyamides) (Leather substitutes)

MONASTYRASKAYA, M.S., kand.tekhn.nauk,dotsent; PAVLOV, S.A., prof.;
SKORNYAKOVA, T.A., inzh.

Using carboxylate latexes to obtain films permeable to vapor.
Izv.vys.ucheb.zav.; tekhn.prom. no.4:39-45 '60. (MIRA 13:10)

1. Moskovskiy tekhnologicheskii institut legkoy promyshlennosti.
Rekomendovana kafedroy tekhnologii iskusstvennoy kozhi.
(Leather, Artificial) (Latex)

20246

S/138/61/000/001/002/010
A051/A029

15.9420 2109, 2209, 1451

AUTHORS: Skornyakova, T. A., Monastyrskaya, M. S., Pavlov, S. A.

TITLE: Investigations of the Interaction of Carboxylate Latexes With Ethylene Glycol

PERIODICAL: Kauchuk i rezina, 1961, No. 1, pp. 7-10

TEXT: Data obtained on the interaction of CKC-30-1 (SKS-30-1) butadiene-styrene carboxylate latexes synthesized at the VNIISK and ethylene glycol are submitted. Table 1 lists the characteristics of the investigated latexes. Ethylene glycol was used in the pure form according to ГОСТ (ТУ)-2789-56 [GOST (TU)-2789-56] specifications. Figure 1 a shows the effect of the pH of the SKS-30-1 latex with 4 % MAK(MAK) on the tear-resistance of the films when heated under conditions of various temperatures. An increase in the tear-resistance of the film with a change in pH is explained by the possible structuralizing with a monovalent sodium ion, just as in the case of films made of one latex (Ref. 1). It is assumed that the strengthening of the latex takes place due to the formation of transverse ester bonds. The highest tear-resistance is reached for films heated to 150°C made of

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A051/A029

Investigations of the Interaction of Carboxylate Latexes With Ethylene Glycol

SKS-30-1 latexes with 4 % MAK and at a high pH value. In order to establish the presence of chemical bonds in the formed structure, the value of the equilibrium module and weight swelling of the films in benzene and ethyl acetate was determined (Table 2). The conclusion is drawn that an alkaline medium promotes the esterification of the polymer although the saponification reaction becomes irreversible in an alkaline medium (Ref. 9). It was shown experimentally that the tear-resistance of the films depends on the duration of the glycol mixing with alkali. When preliminary mixing of glycol with alkali is undertaken, the quantity of the chemical bonds increases. In order to determine the effect of the initial plasticity of the polymer on the properties of the film, experiments were conducted on SKS-30-1 latex with 4 % MAK (polymer hardness according to Defoe 6,000 g). In this case the tear-resistance of 105 kg/cm² was reached only after the film was heated for 1.5 hours. The effect of the presence of carboxylic groups in the polymer on the tear-resistance of the films was determined for SKS-30-1 latex with 10 % MAK, hardness 4,500 g. The tear-resistance depended on the duration

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Investigations of the Interaction of Carboxylate Latexes With Ethylene Glycol

of the heating of the film at 150°C. The effect of the initial plasticity of the polymer and the content of the carboxylic groups was investigated at optimum conditions of mixing. It was noted that in all the films obtained under these conditions the residual elongation did not exceed 9 %. This leads to the conclusion that there are chemical bonds also between the polymer chains. In films obtained from latex at a pH=4 and pH=7 without preliminary mixing of glycol and alkali, the residual elongation exceeds 100 %. The vapor-permeability of the film was determined by the diffusion of water vapors through a 1 cm² film per hour at room temperature in an exsiccator over concentrated sulfuric acid. The same relationship was found to exist between the pH of the latex and the vapor-permeability as between the pH and the tear-resistance (Fig. 4 a, b, c). The initial plasticity of the polymer and the content of methacrylic acid in it have the same effect on the vapor-permeability as on the tear-resistance. An increase in the tear-resistance of the films is connected with the formation of a spatial structure. The initial plasticity of the polymer has no significant effect on the tear-resi-

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S/138/61/000/001/002/010
A051/A029

Investigations of the Interaction of Carboxylate Latexes With Ethylene Glycol

stance. An increase in the carboxylic group content in the SKS-30-1 polymer brings about an increase in this index. There are 4 sets of graphs, 5 tables, and 10 references: 7 Soviet, 3 English.

ASSOCIATION: Moskovskiy tekhnologicheskii institut legkoy promyshlennosti
(Moscow Technological Institute of the Light Industry)

Card 4/10

MONASTYRSKAYA, M.S., kand.tekhn.nauk, dotsent; PAVLOV, S.A., doktor
tekhn.nauk, prof.; SKORNYAKOVA, T.A., inzh.

Hydrophilic properties of films made from carboxylated latex.
Izv.vys.ucheb.zav.;tekh.leg.prom. no.2:47-52 '62. (MIRA 15:5)

1. Moskovskiy tekhnologicheskoy institut legkoy promyshlennosti.
Rekomendovana kafedroy tekhnologii iskusstvennoy kozhi i
plenochnykh materialov.
(Leather, Artificial)

KHOMUTOV, N.Ye.; SKORNYAKOVA, T.N.

Use of cells with a flowing electrolyte. Zhur. prikl. khim. 36
no.8:1772-1776 Ag '63. (MIRA 16:11)

KHOMUTOV, N.Ye.; SKORNYAKOVA, T.N.

Kinetics and polarization in cathodic processes in rotating electrodes from various metals in nitrobenzene-M-sulfo acid solutions. Izv.vys.ucheb.zav.; khim.i khim.tekh. 8 no.4:639-645 '65. (MIRA 18:11)

1. Moskovskiy khimiko-tekhnologicheskii institut imeni Mendeleyeva, kafedra fizicheskoy khimii.

KHOMUTOV, N.Ys.; SKORNYAKOVA, T.N.

Kinetic parameters of the electroreduction of
nitrobenzene-*m*-sulfonic acid and the nature of the
cathode material. Zhur. VKHO 10 no. 4:461-462 '65. (MIRA 18:11)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni
D.I. Mendeleeva.

KHOMUTOV, N.Ye.; SKORNYAKOVA, T.N.

Temperature effect on the kinetics of cathode processes in nitro-
benzene-meta-sulfoacid solutions. Zhur. fiz. khim. 39 no.4:982-
984 Ap '65. (MIRA 19:1)

1. Moskovskiy khimiko-tekhnologicheskii institut imeni Mendeleyeva.
Submitted Jan. 10, 1964.

KHOMUTOV, N. Ye.; SKORNYAKOVA, T.N.

Effect of the material of the electrode on the kinetics of
cathodic processes in solutions of nitrobenzene-~~m~~-sulfonic
acid. Zhur. fiz. khim. 39 no. 1:195-200 Ja '65 (MIRA 19:1)

1. Khimiko-tekhnologicheskii institut imeni D.I. Mendeleeva,
Moskva. Submitted January 10, 1964.

BURSIAN, N.R.; VOLNUKHINA, N.K.; SKORNYAKOVA, V.F.

Catalytic reforming of thermal-cracking gasolines. Khim i tekhn.
topl. i masel 9 no. 635-10 Je'64 (MIRA 17:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh protsessov.

SKORNYAKOVA, V.S., assistant

Projective planes with a special point. Trudy GISI no.25:300-309
'56. (MIRA 11:5)

(Geometry, Differential--Projective)

SKORO, Marta

POLAND

KRYSZEWSKI, Marian; SKORO, Marta

Department of Physics of the Division of Chemistry,
Lodz Polytechnic School (Katedra Fizyki Wydziału Chemicz-
nego Politechniki Lodzkiej) (both)

Crakow, Postępy fizyki, No 3, ¹⁹⁶³pp 289-305.

"Crystallization of High-molecular Compounds. Part II".

POPOV, I.S., akademik; SKOROBAGATYKH, N.N., kand. sel'skokhoz. nauk;
TKHAKAKHOV, Kh.Kh., kand. sel'skokhoz. nauk; DAVIDOVA, L.P.,
kand. sel'skokhoz. nauk; FESYUN, G.I., aspirant

Protein requirements of high-yielding cows. Izv. TSKHA no.6:
191-202 '63. (MIRA 17:8)

1. Vsesoyuznaya akademiya sel'skokhozyaystvennykh nauk imeni
Lenina (for Popov).

SKOROBOGAT, M.Kh.

Standardization in Rostov Province. Standartizatsiia 25 no.3:41 Mr '61.
(MIRA 14:3)

(Rostov Province—Standardization)

SKOROBOGAT, M.Kh.

Conference on standardization at the North Caucasus Economic
Council. Standartizatsiia 27 no.9:48-49 S '63. (MIRA 16:10)

SKOROBOGATAYA, M.A. (Novozybkov)

Conducting an oral examination in arithmetic in the 5th grade.
Mat. v shkole no.6:47-50 N-D '59. (MIRA 13:3)
(Arithmetic--Study and teaching)

SOV/137-58-10-21809

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 10, p 193 (USSR)

AUTHOR: Skorobogataya, N. Ya.

TITLE: Colorimetric Method for the Determination of Copper in a Copper-nickel Catalyst (Kolorimetricheskiy metod opredeleniya medi v medno-nikelevom katalizatore)

PERIODICAL: V sb.: V bor'be za tekhn. progress, Nr 2. Krasnodar, "Sov. Kuban'", 1957, pp 106-107

ABSTRACT: A description of the colorimetric method for the determination of Cu in the solution of Cu-Ni carbonate salt. The salt is dissolved in 20 cc of H_2SO_4 (1:9), heating it to boiling. An Al plate is immersed in the solution and boiled 10 - 15 min. The separated precipitate of metallic Cu is filtered off, washed 2 - 3 times with hot water, and dissolved in 10 cc of HNO_3 (1:3). The solution is transferred into a 50-cc flask, and 1 cc of 10% NH_4OH is added to 5 cc of the solution which is then read colorimetrically on the Dubosque apparatus.

A.M.

Card 1/1

1. Copper--Determination
2. Copper-nickel catalysts--Analysis
3. Colorimetry--Applications

Скоробогатая, Н.Я.
MEYEROV, Ya.S., inzh.; SKOROBOGATAYA, N.Ya., inzh.

Development of the Krasnodar Oils and Fats Combine during the years
of the Soviet regime. Masl.-zhir. prom. 23 no.11:23-25 '57.
(Krasnodar--Oils and fats--History) (MIRA 11:1)

BIBIKOV, F.A.; KAPILANICH, M.V., kand. veter. nauk (Krasnodarskiy kray);
SKOROBAGATCHENKO, I.V.

Veterinary hygiene expertise of poultry products. Veterinariia
41 no.10:86-87 S 161. (MIRA 18:11)

1. Nachal'nik veterinarnogo otdela Krasnodarskoy krayevoy
veterinarnoy laboratorii (for Bibikov). 2. Zaveduyushchiy
otdelom bolezney ptits Krasnodarskoy krayevoy veterinarnoy
laboratorii (for Skorobagatchenko).

TEICH E. E., A.; SKODUBOGAT'KO, A.

Spectral studies of azulene. Part 1. Opt. i spektr. 18 no.3:
396-402 Mr '65. (MIRA 18:5)

SKOROBOGAT'KO, A.A. (Kiyev)

Behavior of p-analytic functions in corner points. Ukr. mat. zhur. 16
no.5:696-698 '64. (MIRA 17:10)

S/044/60/000/003/001/012
C111/C222

AUTHORS: Polozhiy, G.M., and Skorobogat'ko, A.A.

TITLE: On the determination of the tensions in cylindric waves
with an annular groove

PERIODICAL: Referativnyy zhurnal. Matematika, no.3, 1960,41,
abstract 2853 (Nauk.zap. Kyivs'k. un-t, 1957, 16, no.16,
165-170)

TEXT: The method of majorizing regions is applied for the solution
of the problem of the determination of the maximal tensions on the
surface of a cylindrical wave with an annular groove of hyperbolic form.
For sufficiently deep grooves of an arbitrary width the authors give
estimations with the exactness of 1-3%. The exactness of the estimations
becomes essentially smaller for very narrow and not very deep grooves. ✓

[Abstracter's note: Complete translation.]

Card 1/1

AUTHOR: Skorobogat'ko, A. A. 20-119-5-15/59

TITLE: Torsion of Cylindrical Shafts With Circular Grooves
(O kruchenii tsilindricheskikh valov s krugovymi vytochkami)

PERIODICAL: Doklady Akademii Nauk SSSR, 1958, Vol. 119, Nr 5,
pp. 896-898 (USSR)

ABSTRACT: The torsion of shafts with variable diameter is described by the equation system $\partial\varphi/\partial r = (1/r^3)\partial\psi/\partial z$, $\partial\varphi/\partial z = -(1/r^3)\partial\psi/\partial r$, where r and z denote cylindrical coordinates, and φ and ψ -functions which satisfy the corresponding limit conditions. In the case of an infinite cylindrical shaft with circular grooves with the lateral surface of the shaft being free of external stress the function ψ satisfies the conditions $\psi/r=0$, $\psi/L = M/2\pi$. M denotes the total moment of torsion, $r=0$ and L - the current lines limiting the axial cross section. Most important is in this case the determination of the amount of maximum tensions. The present paper solves this problem by means of the method of the majorant ranges.

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Torsion of Cylindrical Shafts With Circular Grooves

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By its means rather simple formulae are obtained which determine the maximum tensions with sufficient accuracy and which also show the error limits. First an upper bound is put down for the value of the tension vector. For the determination of the corresponding lower bound a majorant range G is constructed by replacing the boundary current line L in the axial cross section G of the shaft by a certain other boundary line L' . The analytical expression of this curve L' ($\Psi = \text{const}$) can be found by means of linear combination of two partial solutions of the initially put down system of equations. Then an expression for the amount of the tension vector is deduced and from this the bounds of the wanted magnitude of the maximum tensions up and down are obtained. The arithmetic mean of the upper and lower bound then supplies a simple formula for the approximate determination of the maximum tensions. Finally the expression for the relative errors is put down. A table shows the dependence of the relative error on the parameters of the shaft. The formula deduced, according to the opinion of the author, determines the

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Torsion of Cylindrical Shafts With Circular Grooves

20-119-5-15/59

maximum tensions with sufficient accuracy, especially for the cases most common for shafts with variable diameter. The results found are also valid for some other forms of grooves. There are 2 figures, 1 table, and 3 references, 3 of which are Soviet.

ASSOCIATION: Kiyevskiy gosudarstvennyy universitet im. T. G. Shevchenko
(Kiyev State University imeni T. G. Shevchenko)

PRESENTED: December 6, 1957, by A. A. Dorodnitsyn, Member, Academy of Sciences, USSR

SUBMITTED: December 2, 1957

Card 3/3

RYZHENKO, I.A., inzh.; SKOROBAGAT'KO, A.A., inzh.

Velocity field in rectangular cross-section mines. Izv.vys.
ucheb.zav.; gor.zhur. no.1:83-87 '60. (MIRA 13:6)

1. Kiyevskiy ordena Lenina politekhnicheskoy institut. Rekomendovana
kafedroy ventilyatsii i tekhniki bezopasnosti.
(Mine ventilation)

SHCHERBAN', A.N. [Shcherban', O.N.], akademik; RYZHENKO, I.A. [Ryzhenko, I.O];
SKOROBOGAT'KO, A.A. [Skorobohat'ko, A.A.]

Determining the site of average air velocity measurement in mines with
rectangular and square cross sections. Dop.AN URSR no.8:1050-1052
'60. (MIRA 13:9)

1. Institut teploenergetiki AN USSR i Kiyevskiy gosudarstvennyy
universitet im. T.G. Shevchenko.
(Mine ventilation)

SKOROBAGAT'KO, A.A. [Skorobahat'ko, A.A.]

Boundary value problems of the torsion of shafts with inner grooves.
Dop. AN URSR no.3:357-360 '62. (MIRA 15:5)

1. Kiyevskiy gosudarstvennyy universitet. Predstavleno akademikom
AN USSR A.D.Kovalenko.
(Boundary value problems) (Torsion)

SKOROBAGAT'KO, A.A. [Skorobahat'ko, A.A.] (Kiyev)

Torsion of hollow shafts having annular grooves of circular
shape. Prykl.mekh. 8 no.3:294-302 '62. (MIRA 15:6)

1. Kiyevskiy gosudarstvennyy universitet.
(Shafting)

RYZHENKO, I.A. [Ryzhenko, I.O.]; SKOROBAGAT'KO, A.A. [Skorobagat'ko, A.A.]

Determination of the site for measuring the mean air velocity
in mines with a trapezoidal cross section. Dop. AN URSR no.8:
1061-1065 '62. (MIRA 18:2)

I. Institut teploenergetiki AN UkrSSR i Kiyevskiy gosudarstvennyy
universitet.

L 33432-66 EWT(d) IJP(c)

ACC NR: AT6010210

SOURCE CODE: UR/3187/65/000/001/0020/0040

AUTHOR: Polozhiy, G.N.; Skorobogat'ko, A.A.

ORG: None

TITLE: On a class of summary representations formulas

SOURCE: Kiyev. Universitet. Kafedra vychislitel'noy matematiki. Vychislitel'naya matematika, no. 1, 1965, 20-40

TOPIC TAGS: partial differential equation, Poisson equation, numeric solution, finite difference, summary representation method

ABSTRACT: This paper develops a class of summary representations formulas, useful for the solution of boundary value problems related to the Poisson partial differential equation. The authors extend previous cited work of one of them (G.N. Polozhiy), related to boundary problems of mathematical physics, including elliptic differential equations. The starting point is the derivation of the formulas for a ring sector and a ring for the two-dimensional Poisson equation

$$\Delta_{\sigma} V - 2\lambda q^{-2} V = q^{-2} F(q, \theta) \quad \left(\Delta_{\sigma} = \frac{\partial^2}{\partial \sigma^2} + \frac{\partial^2}{\partial \tau^2} \right), \quad (1)$$

where λ - a real constant, $\rho = \sqrt{\sigma^2 + \tau^2}$, $\vartheta = \arctg \tau/\sigma$. After a transformation to $x = \ln \rho$, $y = \vartheta$, and passage to the equivalent difference equation (2)

Card 1/2

SUB CODE: 12/

SUBM DATE: 00/

ACC NR: AR6027470

SOURCE CODE: UR/0044/66/000/005/B102/B102

AUTHOR: Polozhiy, G. N.; Skorobogat'ko, A. A.

TITLE: A class of formulas for series representation

SOURCE: Ref. zh. Matematika, Abs. SB538

REF SOURCE: Vychisl. matematika. Mezhd. nauchn. sb., vyp. 1, 1965, 20-40

TOPIC TAGS: differential equation, boundary value problem, numeric method, Poisson equation

ABSTRACT: A class of formulas for series representations has been established which is extremely convenient for the numerical solution of numerous boundary problems connected with the two-dimensional Poisson equation. The formula for the series representation for the equations

$$\Delta_{\rho, \theta} V - 2\lambda \rho^{-1} V = \rho^{-1} F(\rho, \theta), \quad (1)$$

has been obtained with λ - a real constant,

$$\rho = \sqrt{\sigma^2 + \tau^2}, \quad \theta = \arctg \frac{\tau}{\sigma}$$

for the annular sector (disregarding its angular points). The case when the annular sector is degenerated into a ring is also investigated. Formulas are established for

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UDC: 518:517.944/.947

ACC NR: AR6027470

series representation for the sector and for the circle of radius

$$\rho_{m+1} = e^{r_0 + (m+1)h_1}$$

and also for the angle (ρ_l, ϕ_k) , $l = \dots, -2, -1, 0, 1, 2, \dots$; $k = 0, 1, \dots, n+1$
and for the plane

$$(\rho_l, \phi_k), \quad l = \dots, -2, -1, 0, 1, \dots; \quad k = 0, 1, \dots, n+1 \quad \left(\begin{array}{l} \phi_0 = 0, \quad \phi_n = 2\pi, \quad \phi_{n+1} = 2\pi + h_1, \\ h_1 = \frac{2\pi}{n} \end{array} \right).$$

The solution of four versions of boundary problems for Eq. (1) is presented for a region G—an annular sector within the plane σ, τ for various types of boundary conditions. Finally, the newly obtained results are generalized so that they can be applied to equations of the form

$$\Delta_{\sigma, \tau} V - 2\lambda \left| \frac{dz}{d\zeta} \right|^{-2} V = \left| \frac{dz}{d\zeta} \right|^{-2} F(\rho, \phi)$$

and

$$\Delta_{r, s} V - 2\lambda \rho^{-2} \left| \frac{dl}{ds} \right|^{-2} V = \rho^{-2} \left| \frac{dl}{ds} \right|^{-2} F(\rho, \phi);$$

[Translation of abstract] Bibliography of 4 titles. I. Shelikhova

SUB CODE: 12

Card 2/2

LEVIN, B.Yu.; GULAK, Yu.K.; SKOROBOGAT'KO, A.F.; ZELENTSOV, V.P.

A bright bolide. Priroda 44 no.4:86-87 Ap '55.
(Meteors)

(MIRA 8:4)

L 52775-65 EWT(1)/EWP(e)/EWT(m)/EPF(c)/EWP(i)/EWP(j)/T/EEC(b)-2/EWP(b)
 PC-4/Pq-4/Pr-4/Pi-4 IJP(c) GG/RM/WH

ACCESSION NR: AF5010754

UR/0181/65/007/004/1259/1261

AUTHOR: Prikhot'ko, A. F.; Skorobogat'ko, A. F.

TITLE: Phase transformation in naphthacene single crystals

SOURCE: Fizika tverdogo tela, v. 7, no. 4, 1965, 1259-1261

TOPIC TAGS: naphthacene, single crystal, phase transformation, first order phase transformation, aromatic compound, exciton splitting

ABSTRACT: The reason for the investigation was that other members of the multi-ring aromatic series of compounds (naphthalene, phenanthrene, anthracene) do not become unstable at low temperatures, but naphthacene does. Crystals 0.1--2 μ thick were obtained by sublimating naphthacene in an inert gas atmosphere and cooling to 20K. An abrupt change in the spectrum of the crystal is observed when cooled below 70K. The exciton splitting of the O-O band increased from 700 to 940 cm^{-1} , and a new band appeared in the component. This indicates that a phase transition takes place in the crystal with a transition point at 70K. The transition to the low-temperature modification is accompanied by a change in the volume of the cell, causing some of the crystals to be destroyed. No phase transition was observed if

Card 1/2

L 52775-65

ACCESSION NR: AP5010754

the crystal was placed in optical contact with quartz (the other crystals were "freely" held in paper envelopes). It is concluded from the large value of the exciton splitting that the transition is of first order, and that the weakly triclinic lattice is replaced by monoclinic, which is inherent of all initial terms of the multi-ring aromatic series. Orig. art. has: 2 figures.

ASSOCIATION: Institut fiziki AN UkrSSR, Kiev (Physics Institute AN UkrSSR)

SUBMITTED: 19Aug64

ENCL: 00

SUB CODE: SS, OF

NR REF SOV: 006

OTHER: 000

Card 2/2

[... ..] A.E. [... ..] A.E.]

Experimental study of pectinase. Ukr. M. [... ..] 1959-1962. 14-
166. (M. 13:8)

1. Institut fiziko-kh. AN UkrSSR, Kyiv-U.

L 35974-66 EWT(m) JW/JD

ACC NR: AP6016045

(A)

SOURCE CODE: UR/0185/66/011/005/0520/0526

AUTHORS: Zvyahin, A. I.--Zvagin, A. I.; Yeremenko, V. V.;
Skorobogatova, I. V.--Skorobogatova, I. V.

ORG: Physicotechnical Institute of Low Temperatures, AN URSR,
Khar'kov (Fizykotekhnichynnyy instytut nyz'kykh temperatur AN URSR)

TITLE: Infrared absorption spectrum of crystals of antiferromagnetic
cobalt compounds. Part III. Absorption in CoCO_3 and CoCl_2

SOURCE: Ukrayins'kyy fizchnyy zhurnal, v. 11, no. 5, 1966, 520-526

TOPIC TAGS: co lt compound, IR spectrum, IR absorption, electron
transition, antiferromagnetic material

ABSTRACT: A study has been made of light absorption by CoCO_3 and CoCl_2
in the $600\text{--}2000\text{ cm}^{-1}$ region and in the $10\text{--}300\text{--K}$ temperature range. It
has been shown that the formation of more absorption bands than expected
from splitting the ground term $^4F_{9/2}$ of the Co^{++} ion in the crystalline
field, taking into consideration spin-orbit interaction, can be
explained by the presence of vibrational (and, possibly, electron-
vibrational) bands. Using Lines arrangement [Lines, M. E., Phys. Rev.,
131, 546, 1963] for splitting the lower triplet of the ground term

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L 35974-66

ACC NR: AP6016045

2

$^4F_{9/2}$ of the Co^{++} ion in CoCl_2 and proceeding from the identification of absorption bands in the CoCl_2 spectrum, it was possible to define the parameters of the intercrystalline field and spin-orbit interaction. An analysis was made of the effect of the antiferromagnetic transition on electron and vibrational absorption bands. During the transition of the CoCl_2 crystal to the antiferromagnetic state, anomalous frequency changes in the electron absorption bands were observed, the magnitude of which is chiefly attributable to the splitting of the ground state of Co^{++} ion in an exchange field. No changes were observed in the maximum, shape, and halfwidth of vibration bands in CoCO_3 , CoCl_2 , and MnCO_3 spectra during the transition of crystals to a magnetoordered state. The authors thank B. I. Verkin, corresponding Member of the AN UkrSSR for his interest in this work and V. I. Kut'ko for his help in carrying out measurements. Orig. art. has: 6 figures. [Based on authors' abstract] [NT]

SUB CODE: 11, 20/ SUBM DATE: 14Jun65/ ORIG REF:005/ OTH REF: 005/

ms
Card 2/2

SKOROBOGAT'KO, L.I.

Manifestation of recent anticlinal structures in the relief
of the Crimean Steppes. Vest. Mosk. un. Ser. 5: Geog. 19
no.3:90 My-Je '64. (MIPA 17:6)

SKORODUCHENKO, M.E.; DANYSENKO, S.S.

Leading laboratory technicians in the Ukraine. Veterinaria 41
no.3:6-8 Mo '65. (MIRA 18:4)

1. Respublikanskaya veterinarnaya laboratoriya Ukrainskoy SSR.

KHARLAMOV, V.S., dotsent, kand. tekhn. nauk; SKOROBOGAT'KO, M.P., inzh.

Analysis of the connection between the physical properties
of petrographic varieties of ores and their iron content.
Sbor. nauch. trud. KGRI no.17:122-127 '63. (MIRA 17:1)

SKOROBOGAT'KO, M.I.

Using sodium triphosphate for additional juice purification.
Sakh. prom. 37 no.5:41 My '63. (MIRA 16:6)

1. Gindeshtskiy sakharney zavod.
(Sugar manufacture) (Sodium triphosphates)

AVERINA, N.I., kand.med.nauk; KRAVCHENKO, C.A.; SKOROBOGAT'KO, P.A.---

Vascular tone and capillary circulation during work in hot shops.
Vrach. delo 4:150-152 Ap '62. (MIRA 15:5)

1. Kafedra gospiatal'noy terapii (zav. - prof. R.Ya.Spivak) Luganskogo
meditsinskogo instituta.
(BLOOD---CIRCULATION) (HEAT---PHYSIOLOGICAL EFFECT)

L 38714-66 EWT(d)/EWP(1) LJP(c) BB/GG

ACC NR: AR6014200

SOURCE CODE: UR/0271/65/000/011/B028/B029

AUTHOR: Samofalov, K. G.; Skorobogat'ko, N. V.; Tikhonov, V. A.

38
12

TITLE: Analog-to-digital converter (60)

SOURCE: Ref. zh. Avtomatika, telemekhanika i vychislitel'naya tekhnika, Abs. 11B235

REF SOURCE: Vestn. Kiyevsk. politekhn. in-ta. Ser. avtomatiki, elektropriborostr. i radioelektron., no. 1, 1964, 123-136

TOPIC TAGS: analog digital converter, voltage digital converter

ABSTRACT: A voltage-to-digital converter is described which consists of these units: a voltage commutator, a summation amplifier, three level-quantizers, twelve rectifiers, three 4-digit registers, two code-to-voltage converters, a voltage-sign shaper, and a main-and-offset-pulse generator. The overall static error of the converter is 0.3%. Circuit diagrams of the principal units designed with electron tubes and semiconductor devices are explained. The code-to-voltage converter uses a method of current summation in a matrix that comprises two resistor types. Six figures. Bibliography of 3 titles. N. P. [Translation of abstract]

SUB CODE: 09

Card 1/1 *Sh*

UDC: 681.142.621

L 11168-67

ACC NR: AR6013782

SOURCE CODE: UR/0044/65/000/010/V042/V042

AUTHOR: Skorobogatov, V. A. 31

TITLE: Some questions of computing environment realization on step elements

SOURCE: Ref. zh. Matematika, Abs. 10V305

REF SOURCE: Sb. Vychisl. sistemy. Vyp. 16, Novosibirsk, 1965, 87-103

TOPIC TAGS: computer research, computer design, computer system, computer theory

ABSTRACT: Peculiarities of a computing environment construction based upon step elements in a conventional (not microminiaturized) execution, are investigated; a model is introduced, which represents a particular case of a two-dimensional computing environment with a fixed tuning; possibility of the realization of various computer systems at relatively small allocation of communication elements is shown. [Translation of abstract].

SUB CODE: 09

Card 1/1 *hde*

UDC 681.142.001.12:511.1

SKOROBOTAT'KO, V.G.

Approximate solution of Giumter's integral equations. Trudy SAGU
no.36:75-85 '53. (MIRA 10:3)
(Integral equations)

SKOROBOGAT'KO, V.G.

One class of linear intetral equations. Trudy SAGU no.37:137-
152 '54 [i.e. '53] (MLRA 10:3)
(Integral equations)

SKOROBOGAT'KO, V.G.

One method for solving generalized weighted integral equations.

Trudy SAGU no.54, 51-68 '54.

(MLRA 10:3)

(Integral equations)

Skorobogat'ko V. G.

44-1-508

TRANSLATION FROM: Referativnyy Zhurnal, Matematika, 1957, Nr 1,
p. 85 (USSR)

AUTHOR: Skorobogat'ko, V. G.

TITLE: Solution of One Class of Linear Integro-Differential Equations (Resheniye odnogo klassa lineynykh integro-differentsial'nykh uravneniy)

PERIODICAL: Tr. Sredneaz. un-ta, 1956, Nr 66, pp. 69-83

ABSTRACT: The linear integro-differential equation: $u(x) = f(x) + \lambda \int_0^m K_i(x, t) u(t) dt$ is solved by a method previously used by the same author (RZhMat, 1956, 2276). The function $f(x)$ and kernels $K_1(x, t)$ have continuous derivatives with respect to x up to m order inclusively for $0 \leq x, t \leq 1$; a form of solution is found for the case of λ not having eigenvalues, and the case of an eigenvalue of λ is investigated. Reviewer's note: The solution of equation (1) was derived by the reviewer by means of reducing it to the integral equation (Sb. nauch. rabot. Minskiy ped. in-t, 1952, pp. 154-166).

Card 1/1

Yu. K. Lando

SKOROBOGAT'KO, V.S.

Cases of globocellular sarcoma of the maxilla, hard palate, lateral wall of the pharynx and cheek. Trudy 1-go MMI 44: 63-65 '65.

Connection of odontogenic infection with diseases of internal organs. Ibid.:92-96

Infectious toxic lesion of the kidneys in odontogenic osteomyelites of the jaws. Ibid.:97-103

Study of the mechanism of the reaction of the cardiovascular system to the removal of teeth in patients with cardiovascular pathology based on the secretion of catechol amines in the urine. Ibid.:127-132

Study of changes in arterial pressure and electrocardiogram in patients with cardiovascular pathology. Ibid.:133-137
(MIRA 18:12)

© 2004 Blackwell Publishing Ltd *Journal of Internal Medicine* 255: 103–110

Received 12 May 1991; accepted 12 September 1991

100-100000-100000-100000-100000

4. A. - 4.

The Journal of Interpersonal Violence 26(10) October 2011

SKOROBOGAT'KO, V.Ya., aspirant.

Clear solution of Cauchy's problem of a generalized hyperbolic
equation with three arguments. Dop.ta pov.L'viv.un. no.4, pt.
2:61-64 '53. (MLRA 9:11)

(Differential equations, Partial)

Shabat, P. Ya.

"Uniqueness and Existence of the Solutions of some Boundary-Value Problems for a Second-order Differential Equation of the Elliptic Types." *Dokl. Akad. Nauk SSSR, L'viv State U, L'viv, 1954. (Zhukovskiy, Feb 55)*

So: Sum. No. 631, 26 ug 55 - Survey of Scientific and Technical Dispositions Defended at USSR Higher Educational Institutions (14)

SKOROBOGAT'KO, V.Ya.

Geometri indications of the solvability of first boundary value
problem for elliptic-type equations. Dop. ta pov. L'viv.un. no.6
pt.2:108-112 '55. (MLA 10:3)
(Differential equations)

SKOROBOGATKO, V. YA

6000

Skorobogat'ko, V. Ya. On domains of solvability of
Dirichlet's problem for self-adjoint elliptic equations.
Ukrain Mat 27 (1955), 91-95. (Russian)

Let D be a bounded region with boundary S in n -space with coordinates $x = (x_i)$. Let $c(x)$ and $(a_{ij}(x)) = A$ have two continuous derivatives in D and consider the Dirichlet problem for the elliptic equation $\sum a_{ij} \partial_i \partial_j u + cu = 0$. Define $N = \sup_x \sup_i \sum |A|^{1/2}$ with $\sum |A|^{1/2} \leq 1$ and put $c^*(x) = c(x)$. It is first shown to be sufficient for the solubility of the Dirichlet problem for D that there exist on the closure \bar{D} continuous functions u_i with i -th order continuous derivatives $\partial_i u_i$ such that on \bar{D} $\sum u_i^2 + c^* \leq \sum u_i^2 + c$. Then an explicit criterion is then obtained. If $c \geq 0$ it is shown that $c^* \leq 1$ implies that D is solvable. The best boundary $c^* = 1$ is shown for D . The criterion is that $c^* \leq 1$ for D is 1. Now let $d(x, S)$ denote the distance between x and S and define the intrinsic diameter d of D to be $d = 2 \max_x d(x, S)$. The second criterion is that $d^2 \sup_x c^*(x) < \pi^2$.

E. A. Ficken.

pp. 1-5
2000

Call Nr: AF 1108825

Transactions of the Third All-union Mathematical Congress, Moscow, Jun-Jul '56,
Trudy '56, V. 1, Sect. Rpts., Izdatel'stvo AN SSSR, Moscow, 1956, 237 pp.

Skorobogat'ko, V. ya. (L'vov). Certain Theorems of the
Qualitative Theory of Partial Differential Equations of
Second Order.

68-69

SKOROBOGAT'KO, V.Ya.

Bisector surface and its properties. Dop. A USSR no.5:
419-422 '56. (MLRA 10:2)

1. L'vivs'kiy derzhavniy universitet. Predstavleno
akademikom Akademii nauk USSR A.Yu. Ishlinskim.
(Polyhedra)

SKOROBOGAT'KO, V. YA.

SKorobogat'ko, V. Ya. Theorem on differential inequalities for an elliptic equation, Ukrain. Mat. Z. 8 (1956), 335-338. (Russian)

1-F/W

Given the differential operator:

$$Lu = a_{11} \frac{\partial^2 u}{\partial x_1^2} + a_{12} \frac{\partial^2 u}{\partial x_1 \partial x_2} + a_{21} \frac{\partial^2 u}{\partial x_1 \partial x_2} + a_{22} \frac{\partial^2 u}{\partial x_2^2} + 2b_1 \frac{\partial u}{\partial x_1} + 2b_2 \frac{\partial u}{\partial x_2} + cu$$

in which the a_{ij} have continuous second derivatives, the b_i have continuous first derivatives, and function c is continuous in a region D with boundary S of Liapounoff type; let B_1 and B_2 be functions continuous and having piecewise continuous first derivatives in D . Let

$$A_i = \frac{1}{2} \sum_{k=1}^2 \frac{\partial a_{ik}}{\partial x_k} - b_i + B_i \text{ and } R = \frac{\partial B_1}{\partial x_1} + \frac{\partial B_2}{\partial x_2} - c.$$

Theorem: Suppose there exist B_1 and B_2 such that for all points in $D+S$,

$$(*) \quad \begin{vmatrix} a_{11} & a_{12} & A_1 \\ a_{21} & a_{22} & A_2 \\ A_1 & A_2 & R \end{vmatrix} > 0.$$

If there are two functions u_1 and u_2 defined in $D+S$ such that $u_1/S = u_2/S$ and $Lu_1 > Lu_2$, then $u_1 \leq u_2$ everywhere in D . It is also proved that if the inner diameter of D is sufficiently small, there exist functions B_1 and B_2 such that $(*)$ is fulfilled. (In equation (2), p. 335, the term $a_{22} \partial^2 u / \partial x_2^2$ is omitted.) J. Cronin (New York, N.Y.)

SKOROBOGAT'KO, V. YA.

Skorobogat'ko, V. Ya. Theorems in the qualitative theory of partial second order differential equations, Ukrain. Mat. Z. 8 (1956), 435-440. (Russian)

I-F/W

Theorems analogous to certain of those for ordinary differential equations are proved for the equation

2

$$(*) \quad \frac{\partial^2 u}{\partial x_1^2} + \frac{\partial^2 u}{\partial x_2^2} + c(x_1, x_2)u = 0 \quad (c \geq 0).$$

Among the results are the following. i) Let solution u of $(*)$ be such that $u > 0$ in a region D_1 with piecewise smooth boundary τ_1 and such that $u/\tau_1 = 0$. (Boundary τ_1 is said to be a "nodal line" of u .) Then the "inner diameter" d_1 of D_1 satisfies the inequalities: $\pi/\sqrt{M} \leq d_1 \leq 2\mu_0/\sqrt{m}$, where $M = \max_{x \in D_1} c$ and $m = \min_{x \in D_1} c$ and μ_0 is the first zero of the Bessel function $J_0(x)$ of zeroth order. ii) Besides the hypotheses of i), assume c is a positive constant and that the set of points x in τ_1 such that there is no circle in D_1 having x on its boundary has linear measure zero. If Z is a solution in D_1 of $(*)$, and if Z and solution u are linearly independent, then solution z is zero at some point of D_1 . iii) Given

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Skorobogat'ko, V. Ya.

$$(**) \quad \frac{\partial^2 u}{\partial x_1^2} + \frac{\partial^2 u}{\partial x_2^2} + c(x_1, x_2, \lambda)u = 0$$

in region D such that for all $(x_1, x_2) \in D$.

$$\lim_{\lambda \rightarrow \infty} c(x_1, x_2, \lambda) = \infty.$$

Then if region D_ν is such that $\bar{D}_\nu \subset D$, there exists λ_ν such that for each $\lambda \geq \lambda_\nu$, the nodal line of a solution u of $(**)$ has a non-empty intersection with D_ν .

J. Cronin.

2-FW

8/2

Skorobogat'ko, V. Ya.

$$(**) \quad \frac{\partial^2 u}{\partial x_1^2} + \frac{\partial^2 u}{\partial x_2^2} + c(x_1, x_2, \lambda)u = 0$$

in region D such that for all $(x_1, x_2) \in D$,

$$\lim_{\lambda \rightarrow \infty} c(x_1, x_2, \lambda) = \infty.$$

Then if region D_0 is such that $\bar{D}_0 \subset D$, there exists λ_0 such that for each $\lambda \geq \lambda_0$, the nodal line of a solution u of $(**)$ has a non-empty intersection with D_0 .

J. Cronin.

SKOROBOGAT'KO, V.Ya

Analogue of Academician S.A. Chaplygin's method of approximate
integration for elliptic equations. Dop. ta pov. L'viv. un.
no.7 pt.3; 273-277 '57. (MIRA 11:2)
(Differential equations, Partial)

SK - Remogat'ko, V. Ya.

SKOROBOGAT'KO, V. Ya.

The bisectonal surface and its properties [with summary in
German]. Ukr.mat.zhur. 9 no.2:215-220 '57. (MLRA 10:7)
(Surfaces) (Elastic rods and wires)

83224

16.3500

S/041/60/012/002/005/005
C111/C333

AUTHOR: Skorobogat'ko, V.Ya.

TITLE: The Decomposability of a Differential Operator Into Factors and
a Theorem on Differential Inequalities

PERIODICAL: Ukrainskiy matematicheskiy zhurnal, 1960, Vol. 12, No. 2,
pp. 215-219

TEXT: With the aid of Chaplygin inequalities the author shows that in-
stead of the Cauchy problem for

$$(3) \begin{cases} (\lambda + \mu) \frac{\partial \theta}{\partial x} + \mu \Delta^2 u = \vartheta \frac{\partial^2 u}{\partial t^2}, & \theta = \frac{\partial u}{\partial x} + \frac{\partial v}{\partial y} \\ (\lambda + \mu) \frac{\partial \theta}{\partial y} + \mu \Delta^2 v = \vartheta \frac{\partial^2 v}{\partial t^2}, & \Delta^2 = \frac{\partial^2}{\partial x^2} + \frac{\partial^2}{\partial y^2} \end{cases}$$

one can solve a Cauchy problem with extended initial conditions for

$$(4) \left[\vartheta \frac{\partial^2}{\partial t^2} - (\lambda + 2\mu) \Delta^2 \right] \left(\vartheta \frac{\partial^2}{\partial t^2} - \mu \Delta^2 \right) u = 0$$

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83224

S/041/60/012/002/005/005
C111/C333

The Decomposability of a Differential Operator Into Factors and a Theorem
on Differential Inequalities

$$(4) \left[\vartheta \frac{\partial^2}{\partial t^2} - (\lambda + 2\mu) \Delta^2 \right] \left(\vartheta \frac{\partial^2}{\partial t^2} - \mu \Delta^2 \right) v = 0$$

A new and simpler proof is given for an older theorem of Mammana (Ref.2)
on the decomposition of a differential operator into linear factors.
There are 3 references: 1 Soviet and 2 German.

SUBMITTED: March 23, 1959

Card 2/2

88304

16.1500

16.3500

S/041/60/012/004/005/011

C111/C222

AUTHOR: Skorobogat'ko, V.Ya.

TITLE: Theorems on the Inner Diameter and Their Application to Some Systems of Differential Equations of Nuclear Physics

PERIODICAL: Ukrainskiy matematicheskiy zhurnal, 1960, Vol. 12, No. 4, pp. 412 - 428

TEXT: In § 1 the author generalizes the notion of the bisectrix. Let \bar{D} be a body in the Euclidean E_m ; $x = (x_1, \dots, x_m)$; $r(x)$ be the distance of the point $x \in E_m$ from the boundary T of \bar{D} ; $C_1(x)$ be a sphere with the radius $r(x)$ and the center in x . Definition: The bisectorial surface of \bar{D} is the set of all $x \in E_m$ for which $C_1(x)$ touches the boundary T in more than one point. In the following \bar{D} is a finite closed polyhedron. § 2 considers the differential equation of elliptic type

$$(1) \quad Lu = \sum_{k,l=1}^m a_{kl}(x) \frac{\partial^2 u}{\partial x_k \partial x_l} + 2 \sum_{j=1}^m b_j(x) \frac{\partial u}{\partial x_j} + c(x)u = f(x)$$

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S/041/60/012/004/005/011
C111/G222

Theorems on the Inner Diameter and Their Application to Some Systems of Differential Equations of Nuclear Physics

defined in a finite region D with a piecewise smooth boundary S, where

$\sum_{k,l=1}^m a_{kl}(x) \alpha_k \alpha_l$ for all $x \in D$ is positive definite, $a_{kl}(x)$ are two

times continuously differentiable, $b_j(x)$ are continuously differentiable,

$C(x)$ may have discontinuities of first kind. The inner diameter of a region is the diameter of the greatest inscribed sphere. Let $A =$

$= \|a_{ij}\|_{i,j=1}^m$, A^{-1} be the inverse matrix $\varphi^* = \|\varphi_1, \dots, \varphi_m\|$, $\varphi = \begin{pmatrix} \varphi_1 \\ \vdots \\ \varphi_m \end{pmatrix}$;

$$N = \max_{x \in D} \left(\max_{\sum_{i=1}^m \varphi_i^2 = 1} \varphi^* A^{-1} \varphi \right); C^* = N \left(\frac{1}{2} \sum_{k,l=1}^m \frac{\partial^2 a_{kl}}{\partial x_k \partial x_l} - \sum_{l=1}^m \frac{\partial b_l}{\partial x_l} + c \right)$$

Card 2/10

88304

S/041/60/012/004/005/011
C111/C222

Theorems on the Inner Diameter and Their Application to Some Systems of Differential Equations of Nuclear Physics

Theorem II : Let D lie strongly in the convex polyhedron \bar{D} with the inner diameter \bar{d} . If

$$\frac{\pi^2}{\bar{d}^2} \max_{x \in D} C^* \text{ then the first boundary value problem for (1)}$$

has a unique solution in C_2 .

[Abstracter's note: Theorem I does not exist in the paper.]

The proof is given by a construction of the bisectorial surface of \bar{D} and a field β consisting of pieces of lines, which connect every point of the bisectorial surface with the nearest point of the boundary \bar{S} of \bar{D} . Let $f_1(x)$ be the length of the piece of the line belonging to β and going through x . Let $\frac{\pi^2}{\bar{d}^2} > M$, where $M = \max_{x \in D} C^*(x)$ and \bar{d} is the inner diameter of the polyhedron \bar{D} . Let t_0 be the greatest root of the equation

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S/041/60/012/004/005/011
C111/3222

Theorems on the Inner Diameter and Their Application to Some Systems of
Differential Equations of Nuclear Physics

$$N(t) = \frac{\tilde{u}^2}{4f_i^2(x)} - \frac{\tilde{u}(m-1)}{2f_i(x)} \cdot \frac{1}{t} \operatorname{ctg} \left(\frac{\tilde{u}}{2f_i(x)} \cdot t \right) - M = 0$$

in \bar{D} .

Theorem 2 : If the inner diameter d of D is smaller than $\bar{d} - t_0$ then the first boundary value problem in this region has a unique solution of the class C_2 .

Theorem 3 : Let D be convex ; the m lines l_1, \dots, l_m run through the point $E \in D$ and are parallel to the axes ; let $\sigma_1, \dots, \sigma_m$ be the lengths of the line segments cut out on these lines by the boundary S of D . If

$$\frac{\tilde{u}}{1} \left(\frac{1}{\sigma_1^2} + \dots + \frac{1}{\sigma_m^2} \right) > C^* \text{ then the first boundary value problem for}$$

(1) has a unique solution in D in the class C_2 .

Card 4/10

88304

S/041/60/012/004/005/011
C111/C222

Theorems on the Inner Diameter and Their Application to Some Systems of
Differential Equations of Nuclear Physics

§ 3. In the region D with a piecewise smooth boundary S the author
considers the system

$$(10) \quad Lu = \sum_{k,l=1}^m \frac{\partial}{\partial x_k} A_{kl} \frac{\partial u}{\partial x_l} + Cu = 0,$$

where A_{kl} are continuously differentiable $n \times n$ matrices, $C =$

$$= C_0 + \sum_{i=1}^m \frac{\partial B_i}{\partial x_i}, \quad B_i \text{ are symmetric matrices, } u = \begin{pmatrix} u_1 \\ \vdots \\ u_n \end{pmatrix}.$$

Theorem 4 : The first boundary value problem for (10) has a unique
solution $u \in C_2$ in D if all principal minors of

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88304

S/041/60/012/004/005/011
C111/C222

Theorems on the Inner Diameter and Their Application to Some Systems of
Differential Equations of Nuclear Physics

$$(12) \quad \begin{vmatrix} A_{11} & \dots & A_{1m} & B_1 \\ \dots & \dots & \dots & \vdots \\ A_{m1} & \dots & A_{mm} & B_m \\ B_1 & \dots & B_m & \sum_{i=1}^m \frac{\partial B_i}{\partial x_i} - c \end{vmatrix}$$

are positive. The B_i are assumed to be continuous everywhere in D with
the exception of the piecewise smooth $(m-1)$ -dimensional surfaces
 S_k ($k = 1, 2, \dots, p < \infty$) on which it holds $\sum_{j=1}^m B_j \cos(r_k, x_k) = 0$ (r_k is
the direction of the normal of S_k) ; the derivatives $\frac{\partial B_i}{\partial x_i}$ ($i = 1, \dots, m$)

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S/041/60/012/004/005/011

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are assumed to be piecewise continuous.

§ 4. The question for the critical extents of an atomic reactor leads to the determination of the conditions under which a homogeneous system

$$(14) \quad \Delta u_i + \sum_{j=1}^n c_{ij} u_j = f_j,$$

$$\Delta = \frac{\partial^2}{\partial x_1^2} + \frac{\partial^2}{\partial x_2^2} + \frac{\partial^2}{\partial x_3^2}, \quad i = 1, 2, \dots, n$$

defined in the atomic reactor D has a non-trivial solution $u = \begin{pmatrix} u_1 \\ \vdots \\ u_n \end{pmatrix}$

(it describes the distribution of neutrons in the critical state) which satisfies the boundary condition

$$(15) \quad \bar{\mathcal{L}} \frac{du_i}{dr} + d_i u_i|_S = 0 \quad i = 1, 2, \dots, n$$

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where S is the boundary of D , r is the outer normal of S . The above theorems can be used for the proof of the uniqueness of the trivial solution and therewith for the solution of the considered reactor problem, i.e. the subcritical dimensions of the reactor can be determined. If e.g. the reactor is a parallelepiped with the sides $\sigma_1, \sigma_2, \sigma_3$, then in this case (14) has the form

$$(18) \quad \frac{\partial^2 u}{\partial x_1^2} + \frac{\partial^2 u}{\partial x_2^2} + \frac{\partial^2 u}{\partial x_3^2} + Mu = 0$$

In the critical case it must hold $\pi^2 \left(\frac{1}{\sigma_1^2} + \frac{1}{\sigma_2^2} + \frac{1}{\sigma_3^2} \right) = M$

since theorem 3 guarantees the uniqueness of the boundary value problem in the parallelepiped if $\pi^2 \left(\frac{1}{\sigma_1^2} + \frac{1}{\sigma_2^2} + \frac{1}{\sigma_3^2} \right) > M$

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In § 5 the preceding results are used in order to show for the system

$$(20) \quad \frac{\partial u}{\partial t} = \sum_{k,l=1}^m \frac{\partial}{\partial x_k} \left(A_{kl}(x,t) \frac{\partial u}{\partial x_l} \right) + Cu, \quad u = \begin{pmatrix} u_1 \\ \vdots \\ u_n \end{pmatrix}$$

defined in $0 \leq t$, $x \in D$, under certain assumptions, the boundedness of the

function $\phi(t) = \int_{D_t} (u_1^2 + \dots + u_n^2) d\tau = \int_{D_t} u^2 d\tau$, where D_t is the

intersection of the cylinder of definition with $t = \text{const}$, for $t \rightarrow \infty$:

$$\lim_{t \rightarrow \infty} \phi(t) \leq b_0 < \infty.$$

Similarly it is shown that for a simplified system of the magneto-gas-

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SKOROBOGAT'KO, V.Ya.; KUKS, L.M., otv. red.; KOTLYAROV, Yu.L., red.;
SARANYUK, T.V., tekhn. red.

[Study of the qualitative theory of partial differential
equations] Issledovanie po kachestvennoi teorii dif-
ferentsial'nykh uravnenii s chastnymi proizvodnymi. L'vov,
Izd-vo L'vovskogo univ., 1961. 124 p. (MIRA 15:4)
(Differential equations, Partial)

31099
S/199/61/002/005/003/006
B112/B138

/6.3400

AUTHOR: Skorobogat'ko, V. Ya.

TITLE: Extremum principle for a system of second-order differential equations

PERIODICAL: Sibirskiy matematicheskiy zhurnal, v. 2, no. 5, 1961,
746 - 758

TEXT: The well-known extremum principle of the Laplace equation $\Delta u = 0$ is generalized for certain systems $L(x, \partial/\partial x)u = 0$. A given solution $u(x)$ of $L(x, \partial/\partial x)u = 0$ defines a mapping $D \rightarrow D^*$ of the domain D of the arguments x on the domain D^* of the values u . The author considers systems of the form $L(x, \partial/\partial x)u = 0$, for which the following condition is fulfilled: The boundary S of D contains at least one point P for which $P \in \text{supp } S^*$, where l is a certain plane of support of D^* . For such systems, an extremum principle is derived, which is a direct generalization of the extremum principle for $\Delta u = 0$. Several examples selected with the aid of certain criteria are given. Ya. B. Lopatinskiy is mentioned. A. V. Bitsadze (Doklady Ak. nauk SSSR, 112, No. 6 (1957), 983 - 986) and L. D. Kudryavtsev

Card 1/2

S/044/62/000/011/022/064
A060/A000

AUTHOR: Skorobogat'ko, V.Ya.

TITLE: Investigations in the qualitative theory of partial differential equations

PERIODICAL: Referativnyy zhurnal, Matematika, no. 11, 1962, 55, abstract 11B222
(Dopovidi ta povidoml. L'vivs'k. un-t, 1961, no. 9, Pt. 2, 15 - 16; Ukrainian)

✓B

TEXT: For a system of second order differential equations of the elliptic type, simple sufficient criteria are worked out for a single-valued solution of the first and third boundary problems. The essence of these criteria reduces to the fact that, if an interior diameter d of a region D in which the system of differential equations is defined is small, then the first and third boundary problems can be solved. The application of these results leads to a new method of working out the critical dimensions of atomic reactors of arbitrary shape. In those cases where the nuclear reactors have the shape of a bar cylinder, or cube, the results of the new method coincide with the results already known from lite-

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Investigations in the qualitative theory of

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A060/A000

For the equation of magnetogas dynamics the method proposed makes it possible to find effective simple conditions for the damping of the magnetic field intensity as a function of time. Proceeding from the ideas of Academicians S.A. Chaplygin and A.A. Andronov, a new method is worked out for finding the time-periodic solutions for a non-linear equation of the parabolic type. The sufficient conditions are found for the existence of a time-periodic solution of a system of differential equations for a "pulsating" atomic reactor. The author distinguishes a class of systems of stationary and non-stationary second-order partial differential equations for which the extremum principle (in the sense of Ya.B. Lopatin-skiy) holds; results are obtained for a system of equations from the theory of elasticity and a generalized system of Monge-Ampere equations. The necessary and sufficient conditions are found for the expansion of a differential linear operator of the n-th order into a product of linear factors with continuous coefficients. For an equation of the form

$$L_n y = y^{(n)} + a_1(x) y^{(n-1)} + \dots + a_n(x) y = 0 \quad (x_1 \leq x \leq x_2) \quad (1)$$

the following theorem holds: the expansion of an operator into factors with continuous coefficients is equivalent to the solution of the n-point Vallee-Poussin

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A060/A000

problem in the interval $x_1 \leq x \leq x_2$. The effective sufficient conditions are found for the factorization of the operator $L_n y$ into linear factors in the coefficients of the operator. The sufficient conditions are given which, when fulfilled, guarantee the validity of the theorem on differential inequalities. Application: a problem with initial conditions for a dynamic system of equations of the theory of elasticity. On the basis of the theorem a new method is given for finding the stability conditions for a differential equation (1) in the interval $0 \leq x \leq \infty$. In certain special cases the results coincide with already known criteria for asymptotic stability and instability of the solutions of a differential equation in the interval $0 \leq x \leq \infty$.

A.S. Fokht

[Abstracter's note: Complete translation]

Card 3/3

SKOROBGAT'KO, V.Ya. (L'vov)

Expansion of linear and nonlinear differential operators in
real cofactors. Ukr. mat. zhur. 15 no.2:217-223 '63.
(MIRA 16:9)

SKOROBOGAT'KO, V.Ye. [Skorobogat'ko, V.IA.]; BOBIR, Ye.I. [Bobyr, Ye.I.]

Sphere of maximum radius inscribed in a given region. Dop. AN UkrSSR
no.12:1567-1570 '63. (MIRA 17:9)

1. Institut matematiki AN UkrSSR. Predstavleno akademikom AN UkrSSR
Yu.A. Mitropol'skim [Mitropol's'kyi, Yu.O.].

ACCESSION NR: AP4040766

S/0021/64/000/006/0703/0706

AUTHOR: Skorobogat'ko, V. Ya., Boby*sk, O. I. (Bobik, O. I.)

TITLE: New criteria for the uniqueness of the solution of the first boundary value problem for an equation of the elliptical type as applied to a system of equations for a nuclear reactor

SOURCE: AN UkrRSR. Dopovid1, no. 6, 1964, 703-706

TOPIC TAGS: Unique solution, nuclear reactor, radioactive material container, nuclear material containment, neutron diffusion, nuclear reactor theory, nuclear reactor safety, elliptical equation, boundary value problem

ABSTRACT: New criteria for the solubility of the first boundary value problem for an elliptical equation of the type

$$\sum_{k=1}^m a_k(x) \frac{\partial^2 u}{\partial x_k \partial x_k} + \sum_{i=1}^m b_i(x) \frac{\partial u}{\partial x_i} + c(x)u = 0, \quad x = (x_1, \dots, x_m) \quad (1)$$

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ACCESSION NR: AP4040766

are considered. Two theorems are proved. It is stated that the diffusion of neutrons in a nuclear reactor is described in the single-group (lumped) approximation by equation 1. The theorems yield values for subcritical dimensions of reactors, such that chain reactions will not occur. Thus, the results may be used in designing vessels of arbitrary shape for safe storage of radioactive substances. Orig. art. contains 2 numbered equations.

ASSOCIATION: Instytut matematyki* AN UkrSSR (Institute of Mathematics AN UkrSSR)

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NO REF SOV: 002

OTHER: 000

Card 2/2

Andriushin, I. Ya., (Moscow); BMB, Te.I. (Moscow)

Factorization of linear and nonlinear differential operators.
Part 2. Ukr.mat. zhur. 10 no.6:783-798 '64 (MIRA 18:2)

SKOROBOGAT'KO, V.Ya.

Method for the derivation of solutions in the theory of ordinary
differential equations. Pribl.metod.res.h.diff.urav. no.2:135-139
'64. (MIRA 18:4)